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Applicant: Olympus Optical Co., Ltd.

Title of the Invention:

Dissolving therapeutic apparatus

Claim:

A dissolving therapeutic apparatus for dissolving an intracavitary aggregate by perfusion and discharging it to the exterior of the body, characterized by having ultrasonic wave generating means for generating a standing wave which captures the intracavitary aggregate at a node of ultrasonic vibration.

[Embodiments]

Figs. 1 to 3 are concerned with a first embodiment of the present invention, of which Fig. 1 is an explanatory diagram showing the configuration of a dissolving therapeutic apparatus, Fig. 2 is a sectional view showing the structure of an ultrasonic wave generator, and Fig. 3 is a diagram for explaining on what principle an aggregate is fixed by a standing wave.

The dissolving therapeutic apparatus shown in Fig. 1 and indicated at 1 includes perfusion means 4 for

dissolving an aggregate 3 present within a body cavity 2 by perfusion and discharging it to the exterior of the body, therapeutic ultrasonic wave generating means 5 for radiating a therapeutic ultrasonic wave to the aggregate 3, and ultrasonic wave generating means 6 for generating a standing wave to capture the aggregate 3 in the cavity 2 at a node of ultrasonic vibration. These components are configured as follows.

The perfusion means 4 includes a perfusion device 8 to be controlled by control means 7 and a catheter 9 extended from the perfusion device 8. A dissolving agent is poured from the perfusion device 8 into the intracavitary aggregate 3 through the catheter 9, while waste liquid containing an aggregate 3a after dissolution is sucked in.

The therapeutic ultrasonic wave generating means 5 includes an ultrasonic wave osciallator 10 whose oscillation is controlled by the control means 7, an amplifier 11 for amplifying an ultrasound signal emitted from the ultrasonic wave oscillator, and a therapeutic ultrasonic wave generator 12 for making the amplified ultrasound signal into an ultrasonic wave. Ultrasonic vibration generated from the ultrasonic wave oscillator 10 is amplified by the amplifier 11 and the amplified

ultrasonic wave can be radiated from the therapeutic ultrasonic wave generator 12 in an ultrasonic wave generator 13 to the aggregate 3 in the cavity 2 through a water bag to be described later. The direction of the therapeutic ultrasonic wave generator 12 can be changed freely in the interior of the ultrasonic wave generator 13.